

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently Amended) A multiple core exchanger of thermal energy, through which a medium passes to exchange thermal energy with fluid flowing through channels of one or more of the ~~multiple~~ cores of the multiple core exchanger ~~of thermal energy~~, the multiple core exchanger ~~of thermal energy~~ comprising:

a first core having a plurality of first channels through which a first fluid flows and a first serpentine fin and louvers disposed between at least some of the first channels to facilitate an exchange of thermal energy between the first fluid and the medium;

191 a second core in thermal communication with the first core, the second core having a plurality of second channels through which a second fluid flows and a second serpentine fin and louvers disposed between at least some of the second channels to facilitate an exchange of thermal energy between the second fluid and the medium;

the second fin being integrally formed with the first fin so that the second fin has a shape which complements that of the first fin;

~~a plurality of thermal fuses which locally connect the first and the second fins between adjacent edges of the first and second fins; and~~

a plurality of thermal breaks, each comprising a slit having a length exceeding one convolution that is cut without the removal of material by teeth in intermeshing forming rolls from the serpentine fins and louvers in one pass through the forming rolls.

2

2. (Canceled)

3. (Canceled)

4. (Original) The multiple core exchanger of thermal energy of claim 1, wherein the first and second cores respectively serve as a condenser and a radiator;
the first fin has a width (L_1);

the second fin has a width (L_2); and
 L_1 is less than or equal to L_2 .

5. (Original) The multiple core exchanger of thermal energy of claim 1, wherein the first and second cores respectively serve as a condenser and a radiator;

the first fin has a width (L_1);
the second fin has a width (L_2); and
 L_1 is greater than L_2 .

6. (Original) The multiple core exchanger of thermal energy of claim 1, wherein the first core and the second core are selected from one or more of the group consisting of an oil cooler, a transmission cooler, a radiator, a condenser, a charge air cooler, an evaporator, a heater core, and combinations thereof.

7. (Canceled)

8. (Canceled)

9. (Canceled)

10. (Canceled)

11. (Canceled)

12. (Canceled)

13. (Currently Amended) The multiple core exchanger of thermal energy of claim 3 1, wherein at least some of the ~~at least one~~ louvers are situated ~~other~~ at least partially across the elongated strip, opposing arrays being separated from each other by the thermal break.

14. (Currently Amended) The multiple core exchanger of thermal energy of claim 3 1, wherein the ~~at least one louver is~~ louvers are located within only one of the cores.

15. (Currently Amended) A multiple core heat exchanger through which a cooling medium passes comprising:

21
a first heat exchanger core having a plurality of first channels through which a first fluid flows and a first fin disposed between adjacent first channels to facilitate heat exchange between the first fluid and the cooling medium, the first fin having a corrugated shape including first upper folds, first lower folds, a first wall extending between one of the first upper folds and one of the first lower folds, and a first array of louvers extending from the first wall;

a second heat exchanger core disposed downstream of the first heat exchanger core, the second heat exchanger core having a plurality of second channels through which a second fluid flows and a second fin disposed between adjacent second channels to facilitate heat exchange between the second fluid and the cooling medium, the second channels extending substantially parallel with the first channels, the second fin being integrally formed with the first fin so that the second fin also has a corrugated shape with second upper folds, second lower folds and a second wall which connects one of the second upper folds and one of the second lower folds, and a second array of louvers extending from the second wall; and

a thermal break comprising a slit having a length exceeding one convolution formed without removal of material between the first and second upper and lower folds, and the first and second walls, thereby inhibiting the flow of heat energy across the first and second fins[[]; and]]

~~a thermal fuse which locally connects the first and the second fins.~~

16. (Previously Added) The multiple core exchanger of thermal energy of claim 1 wherein the serpentine fins include walls that are connected by bent radii.

17. (Canceled)

18. (Currently Amended) The multiple core exchanger of thermal energy of claim ~~17~~ 16 wherein the slits have a non-uniform length.

19. (Withdrawn) A method for continuously roll forming a serpentine fin with a thermal break and a thermal fuse, comprising the step of:

passing a narrow flat sheet of metal between forming rolls that simultaneously form a serpentine fin having convolutions, cut louvers, cut a thermal fuse that may be broken or locally melted during brazing, and cut a thermal break comprising a slit having a length that exceeds one convolution without the removal of material to a prescribed width and pattern.

20. (New) A tool for manufacturing the louvered serpentine fins in the multiple core heat exchanger of Claim 1, comprising:

two rotatable wheel assemblies through which elongated strip may pass,
each wheel assembly having a plurality of stacked fin blades;

at least some of the fin blades engaging the strip so that no material is removed from the strip while simultaneously forming, rolling and cutting the strip to define a serpentine fin for each core;

each of the fin blades including

one or more teeth, each tooth having a peak and a valley connected by a cutting edge that together define a characterizing shape of each fin blade,

the shape being selected so that the wheel assemblies create louvers orthogonal to the length of the strip and discontinuous thermal breaks in the form of slits parallel to the length of the strip that extend between the cores of the multiple core heat exchanger and having a length that exceeds one convolution of the serpentine fins.

21. (New) The tool of claim 20 wherein at least some of the fin blades have one or more teeth with a ridge line that is orthogonal to the longitudinal axis of the elongated strip for defining the louvers.

22. (New) The tool of claim 20 wherein at least some of the fin blades have one or more teeth with a ridge line that is inclined to the longitudinal axis of the elongated strip for defining the louvers.

23. (New) The tool of claim 20 wherein at least some of the fin blades have one or more valleys between adjacent teeth of a given fin blade that include an altered crotch that creates a thermal bridge.

24. (New) The tool of claim 20 wherein at least some of the fin blades have an altered crotch positioned along a flank of a tooth.

25. (New) The tool of claim 20 wherein at least some of the fin blades have teeth that include a symmetrical shoulder portion located distally in relation to an axis of rotation of an associated wheel assembly.

26. (New) The tool of claim 20 wherein at least some of the fin blades have teeth that include an asymmetrical shoulder portion with facets that lie on either side of the shoulder portion, so that one facet of the shoulder portion lie above the other facet.
